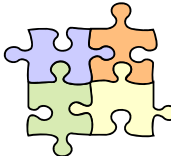


Elementary STEM Workshop Presentation



ELEMENTARY STEM EDUCATION WORKSHOP


Presented by
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At the
Carbon Lehigh Intermediate Unit #21
October 31, 2013

Our Goals

- ▶ To understand integrative STEM education
- ▶ To clarify the value and purpose of integrative STEM education, especially in the elementary school
- ▶ To share and experience ways to engage young children in K-5 integrative STEM education

WHAT IS SCIENCE?



- ▶ The study of the natural world
- ▶ A process and a body of knowledge

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WHAT IS TECHNOLOGY?



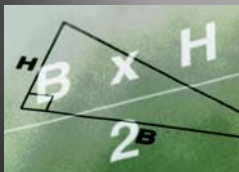
- ▶ The study of the human made and designed world
- ▶ All the things we make and do to get the things we want and need

WHAT IS ENGINEERING?



- ▶ Engaging in a systematic design process to solve problems

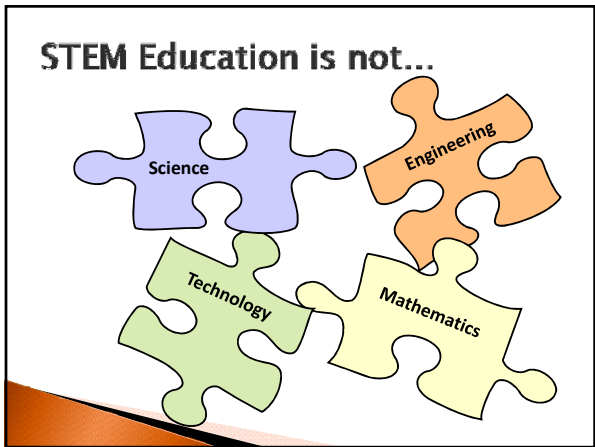
WHAT IS MATHEMATICS?

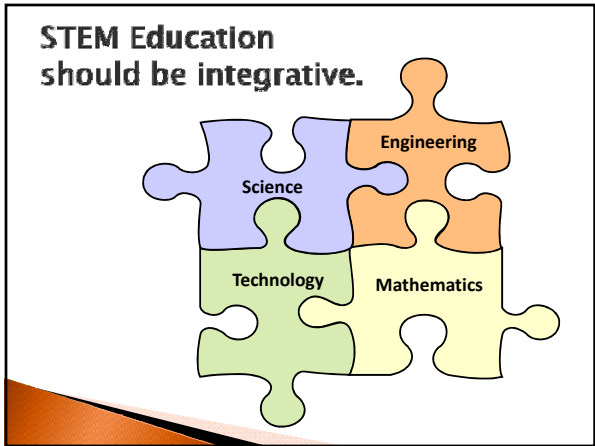


- ▶ The study of patterns, relationships, and order which helps us understand the world around us

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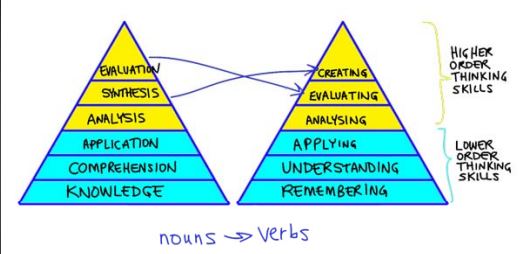


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**WHY IS
STEM EDUCATION
IMPORTANT FOR CHILDREN
IN GRADES K-5?**




**PROVIDES A
REAL WORLD
CONTEXT FOR
LEARNING**



PROMOTES “HOTS”
(Higher Order Thinking Skills)

Image taken from:
<http://edit302.files.wordpress.com/2011/02/bloom-notes.jpg>

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**IT'S FUN AND
MOTIVATING.**




**ENCOURAGES
INNOVATION &
CREATIVITY**

**PROMOTES DEVELOPMENT OF
MOTOR AND PERCEPTUAL SKILLS**



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**BUILDS
STUDENTS'
CONFIDENCE
THROUGH
ACTIVE
ENGAGEMENT**





**NEXT GENERATION
SCIENCE
STANDARDS**



SAS Standards Aligned System

**SUPPORTS EDUCATIONAL
STANDARDS**

**WHAT'S A KEY
COMPONENT OF
INTEGRATIVE STEM
EDUCATION?**

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Teaching children how to use the engineering design process

Taken from Brusnic, S. A., & Barnes, J. (1992). Mission 21 Teacher's Resource Book, Level III. Albany, NY: Delmar.

Children's Engineering
Technology Design Loop

1. What is the problem?

2. Brainstorm solutions.
Use your productive thinking talent to list many, varied, and unusual ideas.

3. Create the solution you think is best.
Make sure that you have a plan for how you will create your solution.
•What things will you need to create your solution?
•How will you build it? A sketch might help.
•List the problems that might keep you from building your solution.

5. Evaluate your solution.
•Was it the best solution?
•What would you have done differently?
•Can you add to it to make it better?

4. Test your solution.

This design loop is copyrighted by Children's Engineering Educators, LLC (2011)

And...collecting evidence of their active engagement in that process.

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